

Figure 40. Drill string on top of thrust block (Photo PN01-520-4-15).

Figure 41 shows the passive HEPA filters on the inner and outer shrouds (one at the top for the space between the drill steel and the inner shroud and one at the bottom for the space between the inner shroud and the outer shroud).

Figure 42 shows another view of the grouting operation with the strategically placed high volume air filters arranged around the thrust block.

Another design feature of the thrust block included a Lexan viewing chamber for locating a remotely controlled Television Camera that extended down into the cavity under the thrust block. Since the thrust block consisted of separate panels allowing supporting “I” beams underneath, each panel had a viewing well. Within the well was placed a TV camera for online and recorded operations. This allowed monitoring of the amount of grout returns under the block during all phases of grouting. These data were feed back to a control trailer located within the weather structure and a second hand held viewing camera was utilized by the grouting operator. In this manner, excess grout returns could be visually monitored and the grouting operation could be immediately stopped if excess returns were observed. Figure 43 shows a view underneath the thrust block which is essentially the view as seen by the camera.

5.3 Grouting Procedures

To grout an individual hole, the following basic procedures were followed:

- Place the drill rig over a hole to be grouted.
- Remove top hole cover.
- Bring the double bag out of the hole and extend both bags to their full extension.
- Place a strap wrench on the bottom of the double bags to keep the two bags from extending into the hole when the bags were placed on the stinger.
- The inner bag was sealed onto the stinger at a high point using plastic strapping, folded over, and forced down to the next lowest point (shown in Figure 44).
- The outer bag was then also strapped with plastic straps, folded over and also pulled down to the line of the elevation of the inner bag.
- When the inner and outer bag were in position, the strap wrench was removed and the drill string was inserted breaking the lower plastic diaphragm.
- Once fully inserted into the waste, jet grouting was started as the drill string was withdrawn in predetermined steps until the nozzles were at the top elevation of the waste. At this point, the drill string was withdrawn through the overburden without grouting.
- The nozzles were positioned in the space under the thrust block, and the drill stem was allowed to drain its grout.
- Once the drill string was withdrawn into the stinger, the entire drill string/shroud assembly was tilted back allowing access to the bags.
- The bag was twisted off and taped (shown in Figure 45).
- The twist off and taped area was cut with either a pipe shear or a special heat knife.

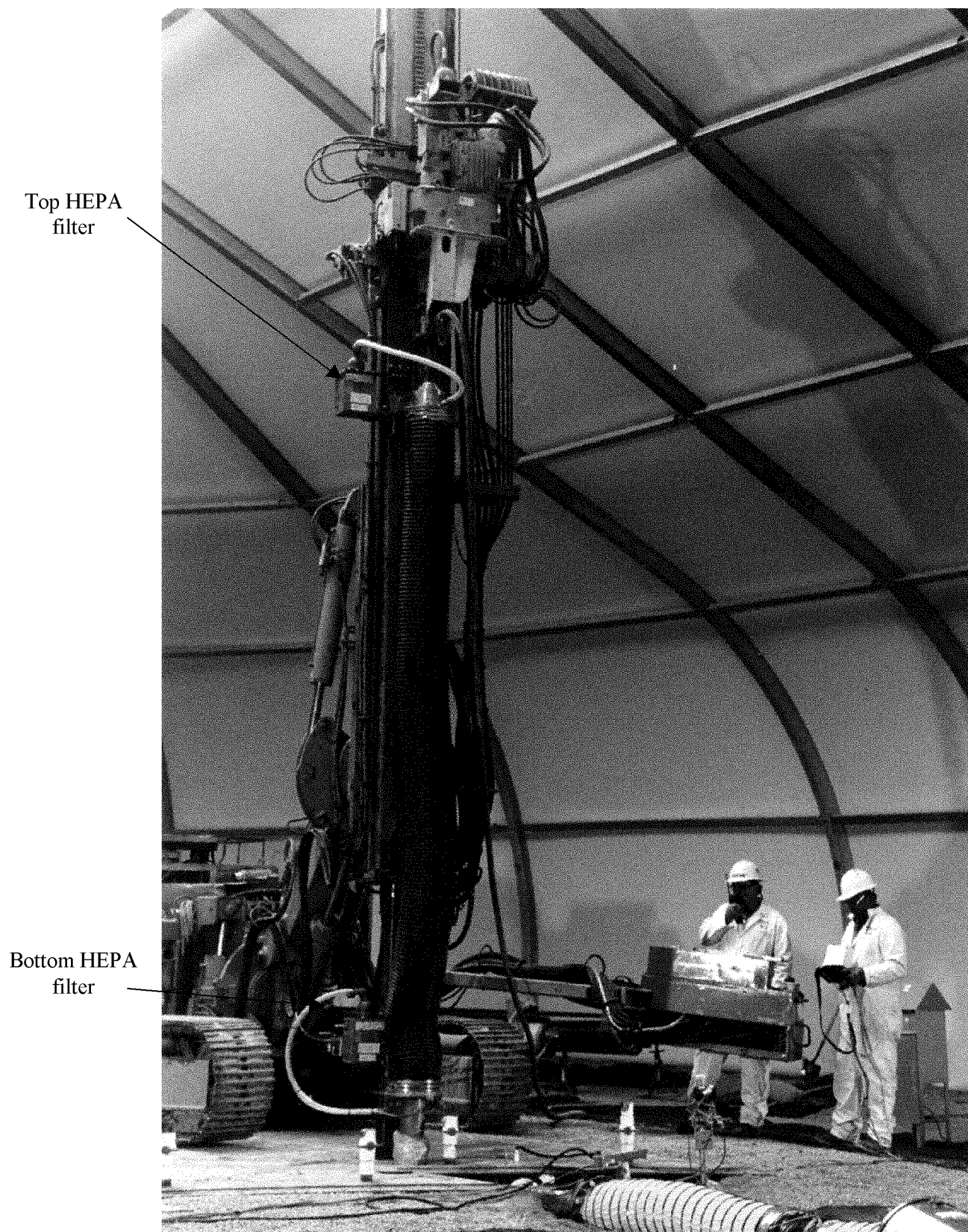


Figure 41. Drill string being inserted into waste pit (Photo PN01-520-4-22).



Figure 42. Air samplers in weather structure (Photo PN01-520-4-25).



Figure 43. View underneath thrust block.



Figure 44. Placing plastic sleeve material on drill string stinger (Photo PN01-520-4-10).



Figure 45. Twisted and taped plastic sleeves ready to cut (Photo PN01-520-5-2).

- This procedure was repeated until the number of plastic bags (upper part of the bags) on the stinger filled the approximately 35 cm (14 in.) of surface. It is noted that the last bag still had a twisted and taped bottom thus maintaining contamination control.
- After the stinger had no more room for bags because of an accumulation of upper bag material, the entire region of upper bag material was taped creating a new smooth work face (the surface of the Duct tape was similar to the surface of the original stinger). To facilitate dropping off the last twist off/taped bottom into the next hole by insertion of the drill string, the bottom taped zone on the stinger had to be perforated. A heat knife and/or a pocket knife was used for this operation. This was mandatory because on that last application of Duct tape, insertion of the drill steel would not pull off the last bag rather the drill steel would simply puncture the bag leaving excess plastic material on the bottom of the stinger.
- The process was repeated until either the shroud required a change out due to nozzle plugging or there was a compromise in the shroud contamination control system.
- Once the space under a specified series of panels in the thrust block was grouted, the remaining void was to be filled with a bentonite slurry mix. This filling was to be done to allow assessing the amount of void left in the thrust block and therefore to calculate the total volume of the grout return realized during the grouting operation by subtracting the bentonite slurry volume from the design volume under the block. In an actual hot operation, this void would be filled with grout to create a nearly impervious top cap. The vents on top of the thrust block would be fitted with a special passive HEPA filter and the air within the void under the thrust block would be expelled out these vents.